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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,389	12/01/2003	Michael Birschbach	067493-5015-US02	5575
67374 7590 07/02/2008 MORGAN, LEWIS & BOCKIUS, LLP ONE MARKET SPEAR STREET TOWER SAN FRANCISCO, CA 94105				
EXAMINER LEWIS, BEN				
ART UNIT 1795		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/726,389

**Applicant(s)**

BIRSCHBACH, MICHAEL

**Examiner**

Ben Lewis

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)  
Paper No(s)/Mail Date \_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

**Detailed Action**

1. The Applicant's amendment filed on March 13<sup>th</sup>, 2008 was received. Claims 1 and 14 were amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action (issued on September 12<sup>th</sup>, 2007).

***Claim Rejections - 35 USC § 102***

3. Claims 1-4, 6, 14-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Scheifers et al. (U.S. Patent No. 5,723,229).

With respect to claims 1, 14, 16 and 19, Scheifers et al. disclose a portable fuel cell device including a water trap (title).

With respect to a container comprising a first chamber for fuel, Scheifers et al. discloses a portable fuel cell device **10** (container) and a fuel reservoir **26** (first chamber for fuel) (Col 2 lines 35-45).

With respect to a port for delivery of fuel to a fuel cell assembly, Scheifers et al. teach that a fuel line **30** (fuel delivery port) is defined within fuel chamber valve **31** and fuel chamber valve body **33** and connects axially to fuel reservoir **26** (Col 2 lines 35-45).

With respect to a second chamber for one or more supplemental components wherein the second chamber comprises at least two ports at least one of which communicates with said fuel cell assembly, Scheifers et al. teach that a water trap **46**

(absorbent device) (second chamber) is fixably attached to base **12** and is supported by exhaust chamber supports **57**. Exhaust line **24** (port connecting to fuel cell) connects with water trap **46** and preferably runs perpendicular to longitudinal axis **19**. By-products exhaust line **48** (second port) is defined within first female valve body **53** and second female valve body **55** and connects axially with water trap **46** (Col 2 lines 60-67).

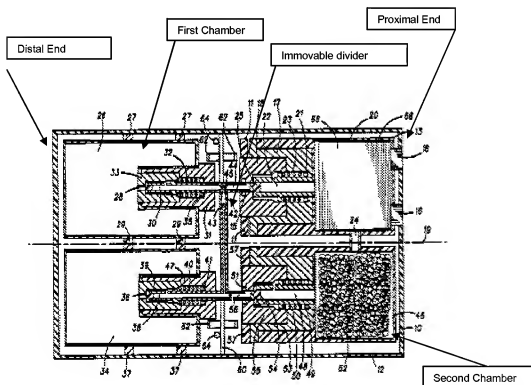
With respect to a container releasably engaging the liquid fuel cell assembly, Scheifers et al. teach that the fuel reservoir **26** is fixably attached to base **12** and supported by fuel chamber supports **27** and fuel and oxidant chamber supports **29** (Col 2 lines 34-45) (Examiner notes that since the fuel reservoir of Scheifers et al. is fixably attached to the fuel cell of Scheifers et al. then it is capable of being disengaged from the fuel cell of Scheifers et al.).

With respect to claims 3, 15 and 18, Scheifers et al. teach that the exhaust gas produced by the reaction in reaction chamber **20** is passed through exhaust line **24** into water trap **46**. The exhaust gas, typically comprised of water and carbon dioxide, passes through water-absorbing medium **52**. In a preferred embodiment, water is trapped in water-absorbing medium **52**, while the carbon dioxide is passed through by-products exhaust line **48** into exhaust vent **56** and into the ambient atmosphere. In an

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alternate embodiment, both the water and the carbon dioxide are absorbed by water-absorbing medium **52**.

With respect to claims 2,4, 6 and 17 Scheifers et al. disclose,



With respect to claim 20 and 21, Scheifers et al. teach that the fuel cell is coupled to portable electronic device (Col 2 lines 7-15).

With respect to claim 22, Scheifers et al. teach that The invention allows portable fuel cells to be used to power portable products while effectively processing the by-product exhausts produced by the fuel cell reaction.

### **Claim Rejections - 35 USC § 103**

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scheifers et al. (U.S. Patent No. 5,723,229).

With respect to claim 5, Scheifers et al. disclose a portable fuel cell device including a water trap in paragraph 2 above.

With respect to a container comprising a first chamber for fuel, Scheifers et al. discloses a portable fuel cell device **10** (container) and a fuel reservoir **26** (first chamber for fuel) (Col 2 lines 35-45).

With respect to a second chamber for one or more supplemental components wherein the second chamber comprises at least two ports at least one of which communicates with said fuel cell assembly, Scheifers et al. teach that a water trap **46** (second chamber) is fixably attached to base **12** and is supported by exhaust chamber supports **57**. Exhaust line **24** (port connecting to fuel cell) connects with water trap **46** (absorbent device) and preferably runs perpendicular to longitudinal axis **19**. By-products exhaust line **48** (second port) is defined within first female valve body **53** and

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second female valve body **55** and connects axially with water trap **46** (Col 2 lines 60-67).

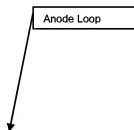
Scheifers et al. does not specifically teach wherein said first chamber is located near said proximal end and said second chamber is located near said distal end. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reposition the location of the first and second chamber of Scheifers et al. to be the same as the positioning claimed by applicant because the rearrangement of parts is a matter of obvious design choice.

In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice). However, "The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device." Ex parte Chicago Rawhide Mfg. Co., 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984).

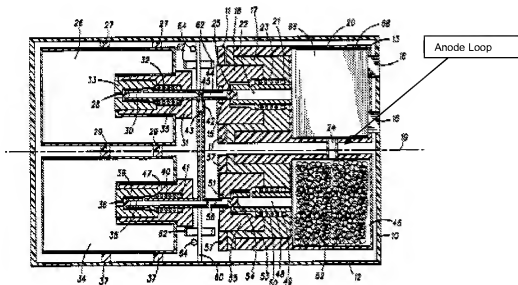
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5. Claim 7-10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheifers et al. (U.S. Patent No. 5,723,229) in view of Gamo et al. (U.S. Patent No. 5,976,725)

With respect to claims 7-10 and 13, Scheifers et al. disclose a portable fuel cell device including a water trap in paragraph 2 above. Scheifers et al. do not specifically teach a metering valve. However, Gamo et al. disclose a fuel cell system wherein a valve mechanism provided in the hydrogen passage for opening and shutting hydrogen gas, and a hydrogen flow rate control mechanism provided in the hydrogen passage for controlling the flow rate of hydrogen gas and/or hydrogen pressure control mechanism for controlling the pressure of hydrogen gas, and therefore it can be used for a longer time, and can be reduced in size and weight (Col 12 lines 20-35). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the controlled valve mechanism of Gamo et al. into the fuel cell system of Scheifers et al. because Gamo et al. teach that the hydrogen gas can be used for a longer time, and can be reduced in size and weight (Col 12 lines 20-35)







6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scheifers et al. (U.S. Patent No. 5,723,229) in view of Gamo et al. (U.S. Patent No. 5,976,725)

With respect to claim 11, Scheifers et al. disclose a portable fuel cell device including a water trap in paragraph 2 above. Scheifers et al. do not specifically teach a metering valve. However, Gamo et al. disclose a fuel cell system wherein FIGS. 17(a) and 17(b) are block diagrams of a portable battery pack using a hydrogen feed system for fuel cell in a different embodiment of the invention. In FIG. 17(b), the embodiment is a modified form of the preceding embodiment, and a filter 206 for passing only hydrogen is provided in the hydrogen lead-in hole 205. As a result, fluctuations of hydrogen occlusion alloy powder between chambers can be suppressed (Col 10 lines 20-40). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the fuel filter of Gamo et al. in the second

chamber of Scheifers et al. because Gamao et al. teach that fluctuations of hydrogen occlusion alloy powder between chambers can be suppressed (Col 10 lines 20-40).

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scheifers et al. (U.S. Patent No. 5,723,229) in view of Gamo et al. (U.S. Patent No. 5,976,725) and further in view of Boneberg et al. (U.S. Pub. No. 2001/0028965 A1).

With respect to claim 12, Scheifers et al. as modified by Gamo et al. disclose a portable fuel cell device including a water trap in paragraph 2 above. Scheifers et al as modified by Gamo et al. do not specifically teach a an ion exchange resin in fluid communication with said first chamber or said fluidic connector. However, Boneberg et al. disclose a tank for a carbon and hydrogen containing fluid (title) wherein in a particularly preferred tank G for methanol as the operating medium, zone 1 of the straining means D is a particle filter; zone 2 is a filter for hydrocarbons; zone 3 is a filter for higher alcohols, ketones, esters and dimethyl ether; zone 4 is a filter for chlorides; and zone 5 is a filter for sulphur compounds (Paragraph 0021). Preferred materials for the removal of hydrocarbons and higher alcohols, ketones, esters and dimethyl ether are activated carbon and/or zeolites. Preferred materials for the removal of chlorides are copper oxide and/or other metal salts and/or ion exchange resins (Paragraph 0022). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the ion exchange resin of Boneberg et al. in the fuel cell system of Scheifers et al as modified by Gamo et al. because Boneberg et al. teach that ion exchange resins are used to remove fuel impurities.

***Response to Arguments***

8. Applicant's arguments filed on March 13<sup>th</sup>, 2008 have been fully considered but they are not persuasive.

*Applicant's principal arguments are*

(a) Scheifers lacks the removable fuel cell cartridge of the present invention including a container releasably engaging a liquid fuel cell assembly, as is called for by amended claims 1 and 14. Scheifers does not disclose such a feature. Instead, Scheifers merely discloses the basics of fuel cell system design. For example, Scheifers merely discloses the mixing of a gaseous fuel and a gaseous oxidant via an aspirator 42, and introducing the mixture to a fuel cell 13. See column I, line 55 et seq. The exhaust from fuel cell 13 is connected to a water trap 46. In contrast, the removable fuel cell cartridge (e.g., cartridges 39f, 39h, 39j, 39k, 39ee) of the present invention includes a container (e.g., container 92f, 92h, 92j, 92k) that releasably engages a fuel cell assembly. See, e.g., FIGS. 16, 18, 21, 23, and 38. The container includes a fuel chamber (e.g., primary chamber 145, 14511, 145ee) and, as such, the fuel chamber is also releasable from the fuel cell assembly. In contrast to Scheifers, the present container also includes either (i) a second chamber (e.g., 146, 146h, 146ee) or (ii) an absorbent device (e.g., absorbent device 216). See claims I and 14, respectively; see also FIGS. 16, 18, and 38. As such, the second chamber or absorbent device are not only removable from the fuel cell assembly, they are removable as a unit with the fuel chamber.

In response to Applicant's arguments, please consider the following comments.

(a) With respect to a container releasably engaging the liquid fuel cell assembly, Scheifers et al. teach that the fuel reservoir **26** is fixably attached to base **12** and supported by fuel chamber supports **27** and fuel and oxidant chamber supports 29 (Col 2 lines 34-45) (Examiner notes that since the fuel reservoir of Scheifers et al. is fixably attached to the fuel cell of Scheifers et al. then it is capable of being disengaged from the fuel cell of Scheifers et al.).

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben Lewis whose telephone number is 571-272-6481. The examiner can normally be reached on 8:30am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ben Lewis/  
Examiner, Art Unit 1795

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/PATRICK RYAN/

Supervisory Patent Examiner, Art Unit 1795